

Bird observations from south-east Sudan

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Observations ornithologiques dans le sud-est du Soudan. Les résultats d'observations ornithologiques réalisées entre janvier 2004 et janvier 2006 dans l'extrême sud-est du Soudan sont présentés ici. Au total, 310 espèces d'oiseaux ont été notées et des compléments aux données de Nikolaus (1987, 1989) sont présentées. Neuf espèces dont la protection est d'intérêt mondial des 34 connues du Soudan ont été observées, parmi lesquelles une population du Percnoptère d'Égypte *Neophron percnopterus*, Menacé d'extinction, ainsi que 47 espèces confinées à un certain biome, parmi lesquelles 37 des 49 espèces du biome Somali-Masai recensées au Soudan. Le site étudié se qualifie ainsi comme Zone d'Importance pour la Conservation des Oiseaux.

Summary. The results of bird observations made between January 2004 and January 2006 in extreme south-east Sudan are presented. In total, 310 species were found and additions to the data found in Nikolaus (1987, 1989) are given. Nine of the 34 species of conservation concern for Sudan were observed, among them a population of the Endangered Egyptian Vulture *Neophron percnopterus*, as well as 47 biome-restricted species. Of the latter 37 of the 49 species of the Somali-Masai biome recorded in Sudan were observed in the study area, which thus qualifies as an Important Bird Area.

Recent information on the birds of Sudan is very scarce or non-existent, most data being at least 15 years old (Robertson 2001). The major reference remains Nikolaus (1987), followed by Nikolaus (1989). Records of birds species observed by B. Piot at Rumbek, southern Sudan (06°50'N 29°42'E) during 21–28 October 2005, were recently published informally (*Bull. ABC* 13: 108).

From 19 January 2004 until 5 January 2006 I worked for a health care project in Nanyangacor, Kauto Payam, Eastern Equatoria, south-east Sudan. In my spare time I made observations on the birds of this remote area, which is rarely visited by foreigners. Here I present an overview of the species I recorded.

Study area

Location

I was based and made most observations at the village of Nanyangacor (05°30'N 34°46'E), c.50 km west of the Ethiopian border and 34 km north of the Ilemi Triangle, which is officially part of Sudan, but is governed by Kenya (Fig. 1). For work purposes I regularly travelled up to 50 km from Nanyangacor in various directions. The area is reachable only by dirt road from the border with Kenya at the Lokichokio–Nadapal road. Roads are more or less unpassable during or directly after rains. An airstrip for small aeroplanes was con-

structed near Kuron in 2005. All of the observations presented here were made within a triangular-shaped region bounded by Lotimor (05°31'N 35°08'E; 40 km east of Nanyangacor), Kuron (05°43'N 34°34'E; 35 km north-west from Nanyangacor) and Naparalang (05°06'N 34°28'E; 55 km south-west of Nanyangacor).

Habitat

The area is variable in altitude, with most of the low-lying areas being *Acacia* thornbush with characteristics of the Somali-Masai biome. Small areas on the hill slopes and the plateau have Sudan-Guinea Savanna characteristics. There is little surface water.

Nanyangacor (730 m) lies in a valley surrounded by the Kauto Plateau, which reaches c.1,100 m (Fig. 5). The Nanyangacor River, which dries up entirely at the peak of the dry season, flows from the plateau towards Naparalang. High trees along the river include *Acacia* spp., tamarind spp., *Terminalia* spp., Sycamore Fig *Ficus sycamorus* and Sausage Tree *Kigelia africana* (Fig. 3). Parts of the area are open, with cotton soil, another type of clay or a sandy surface (Fig. 4). Most of the area is very stony. The vegetation consists of low grasses and shrubs like Sodom Apple *Solanum incanum*. In the lower-lying areas there is low thorn scrub, with Hookthorn *Acacia Acacia melliflora* one of the commonest small trees (Fig. 9).

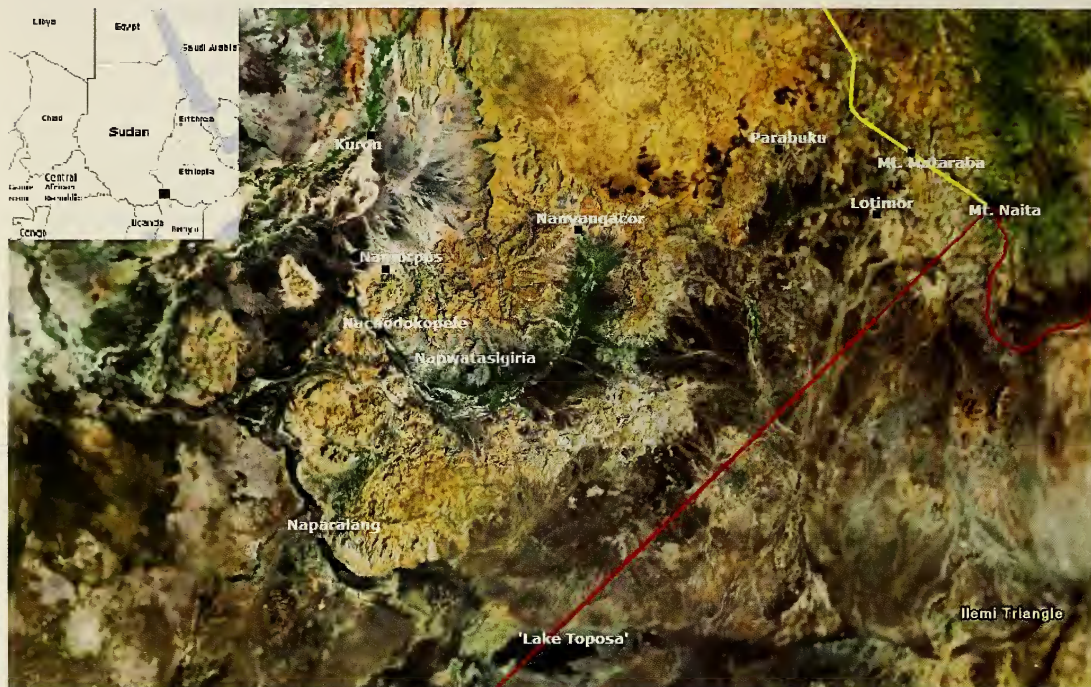


Figure 1. Map of the study area (adapted from Google Earth)

Carte de la zone étudiée (adaptée de Google Earth)

The tree *Balanites aegyptiaca*, which produces small edible fruits, is relatively common. On the hill slopes the surface is also clay with many stones. The main shrub here is *Grewia* *Grewia* sp., with *Terminalia spinosa*, Desert Rose *Adenium obesum*, Sickie Bush *Dichrostachys cinerea* and others on more level ground (Fig. 6). In very rocky places Strangler Fig *Ficus thonningii* and *Euphorbia heterochroma* occur. Myrr *Commiphora africana* is also present, but is rare and I have only seen it near Nachodokopele.

On the Kauto Plateau the surface is variable with large areas of cotton soil or another type of clay, stands of Whistling Thorn *Acacia drepanolobium*, some sandy tracts, and areas showing the characteristics of Guinea savanna, with larger broad-leaved trees.

The environs of Lotimor consist mainly of thornbush. Larger trees, mainly *Acacia* spp., occur only along the river. The water in the study area drains into low-lying valleys or partly (like the Kuron River) into the Nile drainage.

North-east of Naparalang the landscape becomes more hilly and rocky. This facilitates water drainage through seasonal streams that flow very

fast just after rainfall. There are places with stagnant water. This hilly country is part of the western slope of the Ethiopian highlands. Near Nanyangacor and Lotimor, close to the border with Ethiopia, the long ridge of Mt Mataraba reaches c.2,000 m and the peak of Mt Naita is at 2,231 m.

In this entire area there is hardly any surface water, except when Naparalang is inundated. However, there is a permanent lake, called Lake Toposa by local people, on the border of the Ilemi Triangle (04°57'N 34°44'E), c.23 km from Naparalang. Despite this short distance I was never able to reach it due to insecurity and the lack of roads.

Climate

Annual rainfall in 2000–05 varied between 423 and 1,197 mm (Fig. 2). Most rain falls in April–May and August–November. In 2004 and 2005 the rains were good, with 841 and 641 mm respectively.

Temperatures vary little. In 2005 mean maxima varied between 32.1°C (May) and 39.9°C (February) and mean minima between 25.1°C (July) and 28.7°C (February).

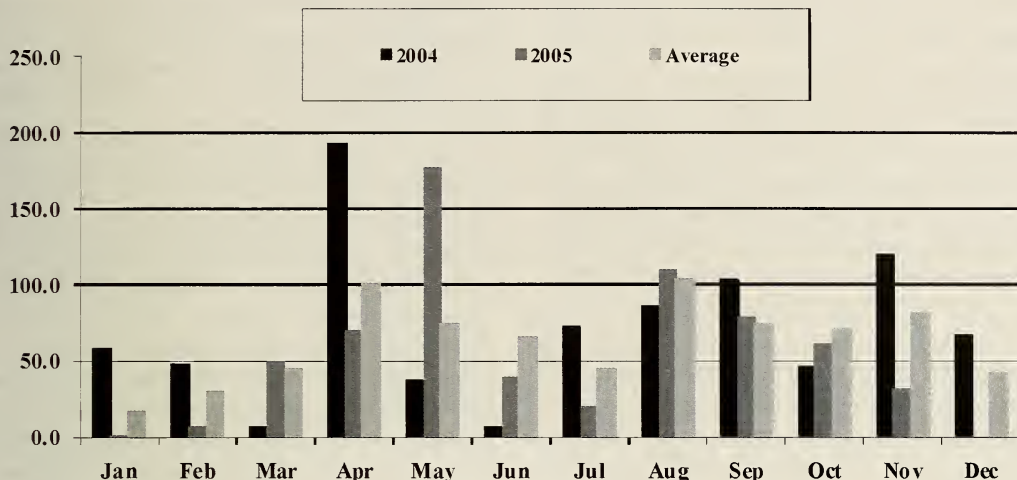


Figure 2. Monthly rainfall in 2004 and 2005 (in mm) compared to average monthly rainfall in 2000–05, at Nanyangacor, Sudan

Précipitations mensuelles en 2004 et 2005 (en mm) comparées aux précipitations mensuelles moyennes en 2000–05, Nanyangacor, Soudan

People and land use

The area is inhabited by pastoralists of the Toposa and Nyangatom tribes. In the last 20 years these tribes have permanently occupied the area, resulting in the land now being grazed year-round, whereas previously it was used during the dry season only. Some agriculture is practised, with the main crop, sorghum, being farmed along small riverbeds (Fig. 7). Some tobacco is produced on the Kauto Plateau.

Hunting pressure is constant. Local people used to hunt with spears, sticks and stones (Günther's Dikdik *Madoqua guentheri* is still regularly killed with stones), but now have firearms. As a result there are now very few large animals (pers. obs.). Elephants *Loxodonta africana* formerly occurred until c.20 years ago, but they now only seem to move between the Ilemi Triangle and the Boma Plateau (the only elephant droppings seen during my stay were on the road to Lotimor).

The recent arrival of expatriates has produced a regular supply of manufactured goods, including metal tools, such as axes and machetes, making it easier to cut firewood from live trees. Larger settlements develop at locations where schools, hospitals and other services are provided, at Nanyangachor and Kuron.

Methods

I attempted to record as many bird species as possible per month by visiting various habitat types. The number of individuals of each species was either counted or estimated. Most observations were made while travelling by car. The surroundings of the following regularly visited sites were also searched for birds: Nanyangacor (427 days), Lotimor (16 visits, totalling 60 days), Napwatasigiria (16 visits, 60 days), Parabuku (five visits, 14 days), Namorpus (four visits, 12 days) and Namasamor (four single-day visits). In total, I spent 572 days in the area.

Evidence of breeding was noted, i.e. observations of birds carrying nesting material, food or faecal sacs, and occupied nests or very recently fledged young being fed by adults. Territorial song or behaviour was also taken as indicative of breeding. Bird calls and songs were recorded with an Olympus VN-240PC digital voice recorder and a Sony ECM-Z60 microphone. The presence of mammals was noted opportunistically (Appendix 4).

Results

I observed 310 species; these are listed in Appendix 1 with their occurrence per month, based on 12,074 bird records. In total, 758 sound recordings of 156 species were made, and were

deposited in the British Library Sound Archive, London, UK, in June 2006.

Comparison with earlier data

Appendix 2 lists 50 species not mentioned by Nikolaus (1987) for the relevant one-degree (120×120 km) squares. Of these, 23–25 species were observed during migration, four were both wintering and on passage, and 5–6 are residents. A few species were only present during the northern summer (2–3) or winter (four). Another seven are breeding birds for the area. One (Mosque Swallow *Cecropis senegalensis*) was only observed once, on 21 December 2004; its status is therefore unknown.

Fifty-five species mentioned by Nikolaus (1987) were not observed by me (47 from square 5/35 and ten from 5/34). Twenty-two are water-related, which suggests these might have been seen within Sudan or in neighbouring Ethiopia, where the Omo River lies partly in this one-degree square. I am not aware of any larger waterbodies within the Sudanian part of this square. I questioned many local people about the occurrence of the Somali Ostrich *Struthio (camelus) molybdophanes*, mentioned by Nikolaus for both squares, and was told that it no longer occurs in the area, probably because the species has been locally hunted to extinction.

Species of conservation concern

Sudan has 34 species of conservation concern (IUCN 2008). Of these, nine were observed in the study area. One is Endangered (Egyptian Vulture *Neophron percnopterus*), four are Vulnerable (Lappet-faced Vulture *Torgos tracheliotus*, White-headed Vulture *Trigonoceps occipitalis*, Greater Spotted Eagle *Aquila clanga* and Lesser Kestrel *Falco naumanni*) and another four Near Threatened (White-backed Vulture *Gyps africanus*, Rüppell's Griffon Vulture *G. rueppellii*, Pallid Harrier *Circus macrourus* and Denham's Bustard *Neotis denhami*).

Biome-restricted species

Species restricted to five different biomes (Fishpool & Evans 2001) were found. Best represented were those of the Somali-Masai biome, of which 37 of the 49 species recorded in Sudan (Robertson 2001) were found. This number is significantly higher than in any of the Important Bird Areas (IBA) in southern Sudan (Robertson

2001; highest number: 28 in Kidepo), or in adjacent south-west Ethiopia (EWNHS 2001).

Second come species restricted to the Sudan-Guinea Savanna biome with six out of 36 species: Fox Kestrel *Falco alopex* (not uncommon breeding resident), Red-throated Bee-eater *Merops bulcocki* (breeding visitor), Green-backed Eremomela *Eremomela canescens* (breeding resident), Gambaga Flycatcher *Muscicapa gambagae* (uncommon in September–January, breeding unknown), Chestnut-crowned Sparrow Weaver *Plocepasser superciliosus* (common breeding resident) and Black-faced Firefinch *Lagonosticta larvata* (one record). IBAs in southern Sudan have up to 25 species restricted to this biome (Robertson 2001).

Two species of the Afrotropical Highlands biome were encountered (White-cheeked Turaco *Tauraco leucotis* and Swainson's Sparrow *Passer swainsonii*). Least represented are species restricted to the Sahara-Sindian biome (one of 17: Lichtenstein's Sandgrouse *Pterocles lichtensteinii*) and the Sahel biome (one of 15: Arabian Bustard *Ardeotis arabs*). Lichtenstein's Sandgrouse was common and present in all months over a wide area around Nayangacor, where it presumably breeds. Arabian Bustard was observed (and filmed) once (a single), near the village of Namorpus on 8 December 2005.

Migration

Waterbirds migrated mainly east–west and west–east. Exceptions were Black Stork *Ciconia nigra* and White Stork *C. ciconia*, which in March 2005 were observed flying north. I suspect that storks, ibises and pelicans fly from the Omo River system to the Nile River system, thereby bypassing the mountains of Ethiopia and moving via the Nanyangacor Valley. From the Nile Valley they can reach the Sudd further north. There might be migration through the Omo River system further north, following the Rift Valley through Ethiopia.

There was a well-marked north–south and south–north migration of other migratory birds during autumn and spring. Particularly noteworthy were raptors (Common Buzzard *Buteo buteo*, Lesser Spotted Eagle *Aquila pomarina*), European Bee-eater *Merops apiaster* and hirundines.

Mammals

Twenty-eight species were recorded (Appendix 3). Leopard *Panthera pardus* is the only mammal on

the list not seen by me, but it definitely occurs, as twice a man who tried to shoot a Leopard was attacked and admitted to the local hospital.

Notes on selected species

Additions to the relevant one-degree squares in Nikolaus (1987) (see Appendix 2) are marked (+). Species of conservation concern are indicated by EN = Endangered, VU = Vulnerable and NT = Near Threatened.

European Honey Buzzard *Pernis apivorus* (+)

Twenty individuals observed, both during spring (on five occasions) and autumn migration (on eight occasions, among which 14 November 2004, Nanyangacor). Mentioned as uncommon and migration 'more pronounced in spring' by Nikolaus (1987).

Egyptian Vulture *Neophron percnopterus* EN

Observed in small numbers (45 in total; both adults and juveniles) in all months except April and July. Most were seen in March (11). I suspect that many birds were migrants from either nearby (Ethiopian massif) or more distant areas. Breeding might occur within 30–40 km of Nanyangacor.

White-backed Vulture *Gyps africanus* NT

Common in the study area: observed in all months (>10 per month). Presumably breeds in the area.

Rüppell's Griffon Vulture *Gyps rueppellii* NT

Fairly common; noted in all months and breeding recorded in March.

Lappet-faced Vulture *Torgos tracheliotus* VU

Observed in all months with slightly higher numbers in November–January.

White-headed Vulture *Trigonoceps occipitalis* VU

Observed in all months.

Pallid Harrier *Circus macrourus* NT

A regular visitor to the area in low numbers (20 individuals in total), especially in September–February. A female was seen near Naparalang on 22 July 2008. The latter seems to be a rather unusual date, although in East Africa this species has been recorded, albeit exceptionally, in July (Britton 1980, Lewis & Pomeroy 1989).

Long-legged Buzzard *Buteo rufinus* (+)

Five individuals observed at Nanyangacor on three occasions in March 2005. Rare in the Sudd and further south (Nikolaus 1989) and not mapped for southern Sudan (Nikolaus 1987).

Greater Spotted Eagle *Aquila clanga* (+) VU

One observed at Nanyangacor during northbound migration, on 1 May 2005. Mapped only for north-eastern Sudan in Nikolaus (1987) and not mentioned at all by Nikolaus (1989).

Verreaux's Eagle *Aquila verreauxii* (+)

Recorded at Napwatasigiria and Nanyangacor. Possible breeder on the hills in the study area. Likely to occur in the bordering area of Ethiopia. Nearest area mentioned by Nikolaus (1989) are the Imatong Mountains (03°55'N 32°55'E).

Lesser Kestrel *Falco naumanni* (+) VU

Nine birds seen migrating south at Nanyangacor on 27 December 2004; one observed hunting at Lotimor on 21 April 2005 and eight along the Nanyangacor–Lotimor road on 22 April 2005.

Denham's Bustard *Neotis denhami* NT

Only one observation, of two birds at Naparalang on 9 April 2004, but dense vegetation in many parts of the area hamper views from the road. Probably extirpated from most of the area by hunting and grazing pressure.

White-cheeked Turaco *Turaco leucotis* (+)

Observed in the Nanyangacor area in March (two), May (one), June (two), July (two) and September (one); no indication of breeding found. This Afrotropical Highlands biome species was previously only recorded in the Boma hills (square 6/34: Nikolaus 1987).

Mottled Swift *Tachymarpis aequatorialis* (+)

Observed twice in April 2005 (>6 birds) and once in October 2005 (one). Possibly indicates movement between wintering and breeding areas, as suggested by Nikolaus (1989). Might breed in the nearby Ethiopian highlands.

Hoopoe *Upupa epops* (+)

Common; observed throughout the year (subspecies *epops* and *l senegalensis* / *waibeli* not distinguished in the field); singing noted in various months. Likely breeder. One individual of the race *africana* was seen at Nanyangacor on 13

February 2004. Nikolaus (1987) mentions only a single record, from Darfur, of this form.

Hemprich's Hornbill *Tockus hemprichii* (+)

Resident, although not observed in May; presumably breeds along the cliffs in the study area. My records fill the small gap in the national range of this uncommon species, which occurs only in the extreme south-east of Sudan (Nikolaus 1987).

Scaly-throated Honeyguide *Indicator variegatus* (+)

The observation of singing birds suggests breeding in April–July, and constitutes a small range extension towards the Ethiopian border.

Gambaga Flycatcher *Muscicapa gambagae* (+)

Found between September 2005 and January 2006. This species is known as an uncommon and local migrant, with breeding records from around 11°N in eastern Sudan (Nikolaus 1987). My records constitute a range extension south of the known breeding areas.

Hunter's Sunbird *Nectarinia hunteri* (+)

A species restricted to the Somali-Masai biome, observed around Nanyangacor and Lotimor in all months except January, May, June and September. A possible observation was made in April. Possibly present year-round. Not previously recorded in the area, although a specimen was obtained from the Ilemi Triangle in May (Nikolaus 1987, 1989).

Lesser Grey Shrike *Lanius minor* (+)

Observed in April 2004 near Nanyangacor (one) and April 2005 on the Kauto Plateau (nine birds in total). An uncommon to rare winter visitor to southern Sudan (Nikolaus 1987, 1989).

Eurasian Golden Oriole *Oriolus oriolus* (+)

In total, 103 migrants were observed on various dates in April 2005 (11 birds) and in September 2004 and 2005, October 2005, November 2004 and 2005, and December 2004. Previously recorded in southern Sudan only during spring migration and it has been suggested that the species would 'overfly [the country] on autumn migration' (Nikolaus 1987, 1989).

Swainson's Sparrow *Passer swainsonii* (+)

Common resident; breeding noted April–July. In southern Sudan, this Afrotropical Highlands biome species was previously only recorded in two neighbouring squares (6/34 and 4/35; Nikolaus 1987).

White-billed Buffalo Weaver *Bubalornis albirostris* (+)

Observed on 51 occasions in all months and in good numbers. Mentioned by Nikolaus (1987, 1989) only for the area around Kapoeta. Not recorded east of 34°E, where Red-billed Buffalo Weaver *B. niger* is reportedly common (Nikolaus 1987, 1989). However, I observed the latter species only twice, in September 2005 (Nanyangacor; one individual) and December 2005 (Namopus; one).

Steel-blue Whydah *Vidua hypocherina* (+)

Three, one with long rectrices, were seen at Lotimor on 20 July 2005. The host species, Black-faced Waxbill *Estrilda erythronotos*, was observed once (one bird) at the same locality on 17 December 2005. This constitutes a slight range extension for both species.

Discussion

The study area qualifies as an Important Bird Area for two reasons (for criteria see Fishpool & Evans 2001): it holds a population of the Endangered Egyptian Vulture and therefore qualifies under criterion A1, as well as under criterion A3 (A08) because the site holds 37 of the 49 species of the Somali-Masai biome recorded in Sudan. Besides these two reasons it holds eight other species of conservation concern.

The area proposed as an IBA could be seen as an extension of Boma National Park, because the northern border should be the Kuron River. As a western border I advise the area around the Lothagum Hills (around 05°19'N 34°19'E) south-east towards Lake Toposa at the border of the Ilemi Triangle, and north-east towards the Ethiopian border near Mt Naita. The eastern border with Ethiopia would also form the eastern boundary of the IBA.

Judging from satellite images, the Ilemi Triangle mostly comprises Somali-Masai biome vegetation. It would be interesting to include it within an IBA, but it is a disputed area between Sudan and Kenya, which has created uncertainty about presence of species within Sudan's borders and has prevented research because of uncertainty as to which country the area belongs, and because the three main tribes (the Turkana in Kenya, Toposa of Sudan and Nyangatom of Sudan and Ethiopia) regularly make cattle raids. There is such a degree of insecurity about the region that even



Figure 3. Habitat near the Nanyangacor River with Sausage Tree *Kigelia africana* (M. de Bont)

Habitat aux environs du fleuve Nanyangacor avec Saucissonier *Kigelia africana* (M. de Bont)

Figure 4. Habitat near Lotimor with Mt Naita in the background (M. de Bont)

Habitat près de Lotimor avec le Mont Naita en arrière-plan (M. de Bont)

Figure 5. Habitat near Nanyangacor with the Kauto Plateau in the background (M. de Bont)

Habitat près de Nanyangacor avec le Plateau de Kauto en arrière-plan (M. de Bont)

Figure 6. Habitat on hill near Nanyangacor (M. de Bont)

Habitat sur une colline près de Nanyangacor (M. de Bont)

Figure 7. Sorghum field near the Nanyangacor River (M. de Bont)

Champ de sorgho aux environs du fleuve Nanyangacor (M. de Bont)

Figure 8. Rock face with the Nanyangacor River in background left (M. de Bont)

Paroi rocheuse avec le fleuve Nanyangacor en arrière-plan à gauche (M. de Bont)

Figure 9. Habitat near Napwatasigiria (M. de Bont)

Habitat aux environs de Napwatasigiria (M. de Bont)

most Toposa would not enter the area, especially for fear of the Turkana.

Birds most at risk within the study area appear to be those restricted to the Sudan-Guinea Savanna and Afrotropical Highlands biome. These biomes indeed occur within a small area. Larger trees are being cut for firewood and construction purposes by the Toposa and Nyangatom peoples, who moved into the area because of the civil war. Hunting is widespread and most larger mammals have already been extirpated.

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Appendix 1. Bird species recorded in the Nanyangacor area, Eastern Equatoria, Sudan, 19 January 2004–5 January 2006

Annexe 1. Espèces d'oiseaux observées dans la zone de Nanyangacor, Eastern Equatoria, Soudan, 19 janvier 2004–5 janvier 2006

Biome (Fishpool & Evans 2001):

SS = Restricted to the Sahara-Sindian biome (1 species)

SA = Restricted to the Sahel biome (1 species)

SG = Restricted to the Sudan-Guinea Savanna biome (6 species)

SM = Restricted to the Somali-Masai biome (37 species)

AH = Restricted to the Afrotropical Highlands biome (2 species)

Bird numbers recorded in the field are given in precise figures or as follows / Le nombre d'oiseaux recensés sur le terrain est indiqué par un chiffre précis ou comme suit:
A = 1, B = 2–10, C = 11–100, D = 101–1,000, E = 1,001–10,000.

An asterisk * marks species for which sound-recordings were made / Un astérisque * indique les espèces dont des vocalisations ont été enregistrées.

■ = Evidence of breeding observed / Preuve de reproduction obtenue

		Biome	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pelecanidae														
Pink-backed Pelican	<i>Pelecanus rufescens</i>		8	—	—	2	—	—	—	—	—	—	—	—
Ardeidae														
Cattle Egret	<i>Bubulcus ibis</i>		—	—	10	>48	C	65	>650	43	3	102	100	—
Striated Heron	<i>Butorides striata</i>		—	—	—	A	A?	—	—	—	—	—	—	—
Great Egret	<i>Egretta alba</i>		—	A	A	—	—	—	—	—	—	—	—	—
Purple Heron	<i>Ardea purpurea</i>		—	—	—	—	—	—	—	—	A	—	—	—
Grey Heron	<i>Ardea cinerea</i>		—	—	—	—	—	—	A	—	—	A	—	A
Black-headed Heron	<i>Ardea melanocephala</i>		—	—	—	A	A	—	12	—	3	6	—	—
Scopidae														
Hamerkop*	<i>Scopus umbretta</i>		A	A	A	B	B	B	A	B	B	B	B	B
Ciconiidae														
Yellow-billed Stork	<i>Mycteria ibis</i>		3	—	24	—	—	—	—	—	A	77	9	12
African Openbill Stork	<i>Anastomus lamelligerus</i>		—	A	59	—	—	15	—	—	140	500	—	A
Black Stork	<i>Ciconia nigra</i>		—	—	8	—	—	—	—	—	—	—	—	—
Abdim's Stork	<i>Ciconia abdimii</i>		6	3	421	2,918	>112	220	—	—	150	—	—	—
Woolly-necked Stork	<i>Ciconia episcopus</i>		—	2	A	—	—	—	—	—	—	—	2	9
White Stork	<i>Ciconia ciconia</i>		—	—	48	19	3	—	A	—	A	2	—	290
Marabou Stork	<i>Leptoptilos crumeniferus</i>		2	C	>50	14	A	B	B	—	5	14	B	67
Threskiornithidae														
Sacred Ibis	<i>Threskiornis aethiopicus</i>		21	—	21	20	A	—	12	46	—	100	19	210
Anatidae														
White-faced Whistling Duck	<i>Dendrocygna viduata</i>		—	—	—	—	C	B	4	—	—	B	—	—
Knob-billed Duck	<i>Sarkidiornis melanotos</i>		—	—	—	—	—	15	—	—	—	—	—	—
Accipitridae														
European Honey Buzzard	<i>Pernis apivorus</i>		—	—	4	—	4	—	—	—	8	3	A	—
Black-shouldered Kite	<i>Elanus caeruleus</i>		—	—	—	A	A	—	—	A	—	—	A	7
African Swallow-tailed Kite	<i>Chelictinia riocourii</i>		—	—	—	—	—	—	A?	2	A	—	2	2
Black Kite	<i>Milvus migrans</i>		—	—	25	—	—	—	—	—	—	—	1	—
Yellow-billed Kite*	<i>Milvus migrans parasitus</i>		C	D	>80	>65	C	C	C	B	31	C	D	C
Egyptian Vulture	<i>Neophron percnopterus</i>		2	4	11	—	A	3	—	A	3	3	2	5
Hooded Vulture	<i>Necrosyrtes monachus</i>		C	C	C	>25	C	C	>100	19	D	C	D	C
White-backed Vulture	<i>Gyps africanus</i>		C	C	C	26	C	C	>25	19	C	C	C	C
Rüppell's Griffon Vulture	<i>Gyps rueppellii</i>		C	C	19	7	4	B	>10	7	C	C	C	C
Lappet-faced Vulture	<i>Torgos tracheliotus</i>		C	8	7	4	9	4	8	4	8	B	C	C
White-headed Vulture	<i>Trigonoceps occipitalis</i>		B	8	8	3	5	4	B	3	5	11	B	B
Short-toed Snake Eagle	<i>Circaetus gallicus</i>		—	—	—	—	—	—	—	A?	—	—	—	A
Black-chested Snake Eagle	<i>Circaetus pectoralis</i>		A	A	A	A	2	—	—	—	A	—	—	—
Brown Snake Eagle	<i>Circaetus cinereus</i>		A	A	—	—	—	2	2	A	—	2	—	3
Bateleur	<i>Terathopius ecaudatus</i>		B	3	9	5	C	6	9	B	B	C	B	B
African Harrier Hawk	<i>Polyboroides typus</i>		A	A	A	A	A	—	2	B	—	—	—	A
Pallid Harrier	<i>Circus macrourus</i>		4	1	—	—	—	—	A	—	A	A	2	9
Montagu's Harrier	<i>Circus pygargus</i>		—	4	13	3	A	—	—	—	—	—	4	4
Western Marsh Harrier	<i>Circus aeruginosus</i>		—	—	3	—	—	—	—	—	A	2	—	5
Gabar Goshawk*	<i>Micronisus gabar</i>		A	B	B	4	B	A	3	B	B	B	B	B
Dark Chanting Goshawk*	<i>Melierax metabates</i>		B	B	B	21	2	7	15	3	B	B	C	B
Shikra*	<i>Accipiter badius</i>		B	B	B	6	B	7	C	B	B	3	C	B
Little Sparrowhawk	<i>Accipiter minullus</i>		—	—	A	—	—	—	—	—	—	—	—	—
Grasshopper Buzzard	<i>Butastur rufipennis</i>		—	A	A	—	A	—	8	A	A	—	—	—
Common Buzzard	<i>Buteo buteo</i>		—	12	717	15	49	—	—	—	556	2,329	2	2
Long-legged Buzzard	<i>Buteo rufinus</i>		—	—	5	—	—	—	—	—	—	—	—	—
Augur Buzzard	<i>Buteo augur</i>		—	—	—	—	—	A	—	—	—	—	A	—
Lesser Spotted Eagle	<i>Aquila pomarina</i>		—	4	202	4	—	—	—	—	A	2	4	5
Greater Spotted Eagle	<i>Aquila clanga</i>		—	—	—	—	A	—	—	—	—	—	—	—
Tawny Eagle*	<i>Aquila rapax</i>		B	C	22	5	7	8	7	B	10	8	C	C
Steppe Eagle	<i>Aquila nipalensis</i>		A	2	10	A	A	—	—	—	—	2	—	4
Verreaux's Eagle	<i>Aquila verreauxii</i>		—	2	3	—	—	2	A	A	2	2	—	—
Wahlberg's Eagle	<i>Aquila wahlbergi</i>		—	—	A	—	—	—	—	—	—	—	2	2
African Hawk Eagle	<i>Hieraaetus spilogaster</i>		B	A	A	B	—	—	—	B	—	B	B	4
Booted Eagle	<i>Hieraaetus pennatus</i>		—	—	—	2	—	—	—	—	—	—	2	—
Martial Eagle	<i>Polemaetus bellicosus</i>		—	A	A	A	2	B	—	—	A	2	B	B

		Biome	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sagittariidae														
Secretarybird	<i>Sagittarius serpentarius</i>		—	—	—	2	—	—	—	—	—	2	—	—
Falconidae														
Pygmy Falcon	<i>Polihiarax semitorquatus</i>		B	3	2	A	A	—	B	—	2	3	A	2
Lesser Kestrel	<i>Falco naumanni</i>		—	—	—	9	—	—	—	—	—	—	—	9
Common Kestrel*	<i>Falco tinnunculus</i>		A	4	5	3	2	3	2	2	B	A	B	6
Fox Kestrel*	<i>Falco alopex</i>	SG	B	5	4	5	C	14	>17	B	B	B	C	C
Grey Kestrel	<i>Falco ardosiaceus</i>		A	A	—	2	B	B	—	B	A	A	—	A
Eurasian Hobby	<i>Falco subbuteo</i>		—	—	2	10	3	—	—	—	6	3	2	—
Lanner Falcon	<i>Falco biarmicus</i>		—	2	2	2	A	4	—	—	3	A	B	B
Numididae														
Helmeted Guineafowl*	<i>Numida meleagris</i>		C	C	C	D	C	C	C	C	C	C	C	C
Phasianidae														
Common Quail	<i>Coturnix coturnix</i>		A	—	—	—	—	—	—	—	—	—	—	—
Harlequin Quail	<i>Coturnix delegorguei</i>		—	—	—	—	—	A	2	—	—	—	—	—
Crested Francolin*	<i>Francolinus sephaena</i>		C	C	C	D	C	D	D	C	C	C	D	D
Yellow-necked Spurfowl	<i>Francolinus leucoscepus</i>	SM	C	C	2	B	C	C	B	C	B	B	B	C
Otididae														
Denham's Bustard	<i>Neotis denhami</i>		—	—	—	—	—	—	—	—	—	2	—	—
Arabian Bustard	<i>Ardeotis arabs</i>	SA	—	—	—	—	—	—	—	—	—	—	—	A
Kori Bustard	<i>Ardeotis kori</i>		—	—	—	—	—	—	—	—	—	3	—	—
Buff-crested Bustard	<i>Eupodotis gindiana</i>	SM	B	B	C	B	B	B	B	B	B	B	B	B
White-bellied Bustard	<i>Eupodotis senegalensis</i>		B	B	B	B	B	B	—	10	B	B	B	B
Black-bellied Bustard	<i>Lissotis melanogaster</i>		A	2	—	—	—	—	A	—	—	—	2	—
Hartlaub's Bustard	<i>Lissotis hartlaubii</i>		—	—	—	A	—	—	—	—	—	—	—	—
Recurvirostridae														
Black-winged Stilt	<i>Himantopus himantopus</i>		—	—	4	—	—	—	—	—	—	15	—	—
Burhinidae														
Spotted Thick-knee*	<i>Burhinus capensis</i>		B	B	B	B	B	B	C	B	B	B	B	B
Glaeolidae														
Temminck's Courser	<i>Cursorius temminckii</i>		—	—	—	—	—	—	A	—	4	—	8	—
Charadriidae														
African Wattled Lapwing	<i>Vanellus senegallus</i>		—	—	—	—	—	A	—	—	—	—	—	6
Black-headed Lapwing	<i>Vanellus tectus</i>		—	5	—	A	B	B	—	6	—	—	4	—
Spur-winged Lapwing	<i>Vanellus spinosus</i>		—	—	A	—	—	A	A	—	—	4	—	—
Crowned Lapwing	<i>Vanellus coronatus</i>		B	4	—	—	—	—	B	—	3	—	4	3
Scolopacidae														
Marsh Sandpiper	<i>Tringa stagnatilis</i>		—	—	—	—	—	—	—	—	—	2	—	—
Common Greenshank	<i>Tringa nebularia</i>		—	—	—	—	—	—	—	—	—	3	—	—
Green Sandpiper	<i>Tringa ochropus</i>		—	—	A	A	—	—	—	A	8	7	A	7
Wood Sandpiper	<i>Tringa glareola</i>		—	—	—	A	—	—	—	—	—	3	—	—
Common Sandpiper	<i>Actitis hypoleucos</i>		—	—	7	5	—	—	2	A	A	4	—	—
Pteroclididae														
Chestnut-bellied Sandgrouse*	<i>Pterocles exustus</i>		—	—	—	—	—	—	—	—	—	—	—	>30
Lichtenstein's Sandgrouse*	<i>Pterocles lichtensteinii</i>	SS	C	C	C	C	B	40	>20	A	B	C	C	C
Four-banded Sandgrouse*	<i>Pterocles quadricinctus</i>		—	—	—	—	—	—	>25	—	—	—	—	—
Columbidae														
Bruce's Green Pigeon*	<i>Treron waalia</i>		C	C	C	C	C	D	C	C	D	C	C	C
Tambourine Dove	<i>Turtur tympanistria</i>		—	—	—	—	—	A	—	—	—	—	—	—
Emerald-spotted Wood Dove*	<i>Turtur chalcospilos</i>		D	D	D	D	D	D	D	D	D	D	D	D
Namaqua Dove*	<i>Oena capensis</i>		B	C	C	18	D	D	E	D	D	C	D	C
Speckled Pigeon	<i>Columba guinea</i>		—	3	7	>23	3	2	16	—	10	A	A	B
Red-eyed Dove*	<i>Streptopelia semitorquata</i>		C	C	D	D	D	C	D	C	C	C	D	C
African Mourning Dove*	<i>Streptopelia decipiens</i>		C	D	D	D	D	D	E	D	D	D	D	D
Vinaceous Dove*	<i>Streptopelia vinacea</i>		C	C	C	C	C	C	C	C	C	C	C	C
Laughing Dove*	<i>Streptopelia senegalensis</i>		D	D	D	D	D	E	E	D	D	D	D	D
Psittacidae														
Meyer's Parrot*	<i>Poicephalus meyeri</i>		B	C	B	>9	C	C	C	C	C	C	C	C
Musophagidae														
White-cheeked Turaco*	<i>Tauraco leucotis</i>	AH	—	—	2	—	A	2	2	—	A	—	—	—

		Biome	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
White-bellied Go-away-bird*	<i>Corythaixoides leucogaster</i>	SM	C	C	C	D	C	C	C	C	C	C	C	C
Eastern Grey Plantain-eater*	<i>Crinifer zonurus</i>		B	B	B	C	B	C	C	B	15	B	C	C
Cuculidae														
Jacobin Cuckoo*	<i>Clamator jacobinus</i>		—	—	A	B	B	C	16	B	B	B	—	A
Great Spotted Cuckoo*	<i>Clamator glandarius</i>		—	—	A	4	4	9	6	—	B	A?	—	2
Red-chested Cuckoo*	<i>Cuculus solitarius</i>		—	—	—	B	B	B	B	B	B	—	A	—
Common Cuckoo	<i>Cuculus canorus</i>		—	—	—	—	—	—	—	—	3	—	—	—
African Cuckoo*	<i>Cuculus gularis</i>		—	—	A	>26	5	8	A	—	B	B	—	—
Klaas's Cuckoo*	<i>Chrysococcyx klaas</i>		A	A	A	A	B	2	2	—	2	A	—	A
Didric Cuckoo*	<i>Chrysococcyx caprius</i>		—	—	—	4	3	5	10	B	>11	2	B	—
White-browed Coucal*	<i>Centropus superciliosus</i>		B	C	8	C	C	C	C	C	B	B	C	C
Tytonidae														
Barn Owl	<i>Tyto alba</i>		—	—	—	A	—	B	2	A	—	A	—	A
Strigidae														
African Scops Owl*	<i>Otus senegalensis</i>		A	B	B	B	B	B	B	B	B	B	B	B
Northern White-faced Owl	<i>Ptilopsis leucotis</i>		B	B	B	B	B	B	B	B	B	B	B	B
Spotted Eagle Owl	<i>Bubo africanus</i>		A	A	—	—	—	—	—	—	—	—	A	—
Verreaux's Eagle Owl	<i>Bubo lacteus</i>		A	A	—	—	B	B	B	B	B	A	—	B
Pearl-spotted Owlet*	<i>Glaucidium perlatum</i>		B	—	—	2	A	4	2	B	2	—	B	B
Caprimulgidae														
Slender-tailed Nightjar*	<i>Caprimulgus clarus</i>		B	C	>50	D	C	C	C	C	C	C	C	C
Star-spotted Nightjar	<i>Caprimulgus stellatus</i>	SM	—	—	—	—	—	A	2	—	2	2	—	—
Freckled Nightjar*	<i>Caprimulgus tristigma</i>		A	B	B	—	A	B	B	B	B	B	B	B
Standard-winged Nightjar	<i>Macrodipteryx longipennis</i>		—	—	—	A	2	—	—	—	—	—	—	—
Apodidae														
African Palm Swift	<i>Cypsiurus parvus</i>		2	—	—	2	—	3	—	—	—	—	—	—
Common Swift	<i>Apus apus</i>		—	—	460	>555	>300	—	50	E	D	194	B	C
White-rumped Swift	<i>Apus caffer</i>		—	—	—	>1	—	—	—	2	3	—	—	—
Little Swift*	<i>Apus affinis</i>		C	C	>100	C	>60	C	>22	E	D	C	D	C
Mottled Swift	<i>Tachymartia aequatorialis</i>		—	—	—	>5	—	—	—	—	—	A	—	—
Alpine Swift	<i>Tachymartia melba</i>		D	D	240	>70	>38	—	—	>17	C	72	D	D
Coliidae														
Blue-naped Mousebird*	<i>Urocolius macrourus</i>		D	D	D	D	C	D	C	C	D	C	D	D
Speckled Mousebird*	<i>Colius striatus</i>		—	B	C	B	C	C	C	C	B	C	C	C
Alcedinidae														
Grey-headed Kingfisher*	<i>Halcyon leucocephala</i>		B	B	B	17	C	C	C	B	2	—	A	B
Woodland Kingfisher*	<i>Halcyon senegalensis</i>		—	—	—	—	—	A	2	A	B	A	A	—
Striped Kingfisher*	<i>Halcyon chelicuti</i>		—	B	10	B	B	B	B	B	A	B	B	B
African Pygmy Kingfisher*	<i>Ceyx pictus</i>		2	B	4	6	B	11	C	B	B	A	B	C
Pied Kingfisher	<i>Ceryle rudis</i>		—	—	—	—	A	—	—	—	—	—	—	—
Meropidae														
Little Bee-eater*	<i>Merops pusillus</i>		B	C	C	D	C	12	>20	C	C	C	C	C
Swallow-tailed Bee-eater	<i>Merops hirundineus</i>		—	B	B	—	—	—	3	—	—	—	—	—
Red-throated Bee-eater*	<i>Merops bulcocki</i>	SG	30	C	C	C	—	—	—	17	13	2	D	C
White-throated Bee-eater	<i>Merops albicollis</i>		—	—	12	—	C	3	>85	C	B	—	—	—
Madagascar Bee-eater*	<i>Merops superciliosus</i>		—	—	—	>3	>49	D	>155	C	C	B	—	—
European Bee-eater*	<i>Merops apiaster</i>		—	—	>300	>1,276	>847	—	—	>45	>312	>636	>1	—
Northern Carmine Bee-eater*	<i>Merops nubicus</i>		C	C	E	>28	>10	>104	>175	>46	D	D	D	E
Coraciidae														
Rufous-crowned Roller*	<i>Coracias naevius</i>		8	2	C	C	C	C	C	5	C	C	C	C
Abyssinian Roller*	<i>Coracias abyssinicus</i>		C	C	C	C	C	D	C	C	C	B	C	C
Broad-billed Roller	<i>Eurystomus glaucurus</i>		A	—	—	—	B	—	—	—	—	—	—	—
Phoeniculidae														
Green Woodhoopoe*	<i>Phoeniculus purpureus</i>		C	C	C	C	C	C	C	C	C	C	C	C
Black Scimitarbill*	<i>Rhinopomastus aterrimus</i>		B	—	—	—	—	2	—	3	2	—	—	—
Abyssinian Scimitarbill*	<i>Rhinopomastus minor</i>	SM	B	B	B	8	3	13	>17	3	B	B	B	C
Upupidae														
Hoopoe*	<i>Upupa epops</i>		A	B	6	6	B	10	4	C	10	5	B	B
African Hoopoe	<i>Upupa epops africana</i>		—	A	—	—	—	—	—	—	—	—	—	—

		Biome	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bucerotidae														
Abyssinian Ground Hornbill*	<i>Bucorvus abyssinicus</i>		B	—	4	11	2	4	8	2	11	6	B	3
Red-billed Hornbill*	<i>Tockus erythrorhynchus</i>		C	D	C	D	C	D	C	C	C	D	D	D
Eastern Yellow-billed Hornbill*	<i>Tockus flavirostris</i>	SM	A	B	14	B	A	B	19	B	B	B	—	B
Jackson's Hornbill*	<i>Tockus jacksoni</i>	SM	C	C	C	C	C	C	C	C	C	C	D	D
Hemprich's Hornbill*	<i>Tockus hemprichii</i>	SM	B	3	4	7	—	4	12	A	3	8	B	B
African Grey Hornbill*	<i>Tockus nasutus</i>		C	C	C	C	C	D	C	C	D	D	D	C
Capitonidae														
Red-fronted Tinkerbird*	<i>Pogoniulus pusillus</i>		C	C	C	D	B	D	C	C	C	C	C	C
Black-throated Barbet*	<i>Tricholaema melanocephala</i>	SM	C	C	C	8	B	C	C	C	C	C	D	D
Red-and-yellow Barbet*	<i>Trachyphonus erythrocephalus</i>	SM	C	C	C	D	C	C	C	C	C	C	D	D
D'Aud's Barbet*	<i>Trachyphonus damaudii</i>	SM	C	C	C	D	C	C	D	D	C	C	C	D
Indicatoridae														
Scaly-throated Honeyguide	<i>Indicator variegatus</i>		—	—	—	2	3	B	A	—	—	—	—	—
Greater Honeyguide*	<i>Indicator indicator</i>		A	B	3	9	B	B	2	B	B	A	A	B
Lesser Honeyguide	<i>Indicator minor</i>		—	—	B	—	B	A	—	—	2	—	A	A
Picidae														
Nubian Woodpecker*	<i>Campethera nubica</i>		C	C	C	D	C	C	C	C	C	C	C	C
Cardinal Woodpecker*	<i>Dendropicos fuscescens</i>		—	B	B	A	—	A	A	A	A	—	B	B
Grey Woodpecker*	<i>Dendropicos goetae</i>		—	B	4	A	—	2	—	—	—	—	—	B
Alaudidae														
Rufous-naped Lark*	<i>Mirafra africana</i>		—	—	—	—	—	—	C	—	C	—	B	B
Red-winged Lark	<i>Mirafra hypermetra</i>	SM	—	B	C	5	B	5	—	A	—	A?	A?	B
Flappet Lark*	<i>Mirafra rufoinnamomea</i>		—	B	—	A	—	—	—	A	A	—	B	B
Pink-breasted Lark*	<i>Mirafra poecilosterna</i>	SM	—	—	—	—	—	B	—	B	A	>11	B	B
Chestnut-backed Sparrow Lark	<i>Eremopterix leucotis</i>		—	—	—	—	—	—	—	—	—	—	2	B
Chestnut-headed Sparrow Lark	<i>Eremopterix signatus</i>	SM	C	—	—	31	—	—	—	—	—	C	B	>250
Hirundinidae														
Common Sand Martin	<i>Riparia riparia</i>		—	—	35?	—	121	—	—	—	>136	16	2	—
Mosque Swallow	<i>Cecropis senegalensis</i>		—	—	—	—	—	—	—	—	—	—	—	A
Lesser Striped Swallow	<i>Cecropis abyssinica</i>		—	—	—	—	—	—	—	—	—	—	—	3
Rock Martin	<i>Ptyonoprogne fuligula</i>		B	B	C	8	>10	C	C	C	C	C	C	C
Barn Swallow	<i>Hirundo rustica</i>		B	C	38	>148	274	A	13	53	>845	>1,098	29	C
Common House Martin	<i>Delichon urbicum</i>		20	60	35	51	35	—	—	—	406	102	2	40
Motacillidae														
Yellow Wagtail*	<i>Motacilla flava</i>		—	B	3	>54	—	—	—	—	A	>81	58	8
Grey Wagtail	<i>Motacilla cinerea</i>		—	—	—	—	—	—	—	—	—	A	—	—
White Wagtail	<i>Motacilla alba</i>		—	A?	—	—	—	—	—	—	—	—	2	6
African Pied Wagtail	<i>Motacilla aguimp</i>		—	—	—	—	A	A	A	—	—	—	—	—
Long-billed Pipit*	<i>Anthus similis</i>		B	B	B	>15	C	C	C	B	C	B	C	B
Tree Pipit	<i>Anthus trivialis</i>		A	B	—	—	—	—	—	—	—	—	3	4
Campephagidae														
Red-shouldered Cuckooshrike*	<i>Campephaga phoenicea</i>		—	A	—	2	—	—	—	—	—	—	—	—
Pycnonotidae														
Northern Brownbul*	<i>Phyllastrephus strepitans</i>		C	C	D	D	C	D	D	C	C	C	D	D
Common Bulbul*	<i>Pycnonotus barbatus</i>		D	D	D	D	C	D	D	D	D	C	D	D
Turdidae														
White-browed Robin Chat*	<i>Cossypha heuglini</i>		B	B	C	C	C	C	C	C	C	C	C	C
Spotted Palm Thrush*	<i>Cichladusa guttata</i>		D	D	D	D	D	D	D	C	D	D	D	D
White-browed Scrub Robin*	<i>Cercotrichas leucophrys</i>		D	C	C	D	D	D	D	D	C	C	D	D
Common Redstart*	<i>Phoenicurus phoenicurus</i>		A	9	7	4	—	—	—	—	—	—	—	B
Whinchat	<i>Saxicola rubetra</i>		—	—	2	—	—	—	—	—	—	—	—	2
Northern Wheatear*	<i>Oenanthe oenanthe</i>		C	C	C	A	—	—	—	—	A	C	D	D
Pied Wheatear	<i>Oenanthe pleschanka</i>		C	C	B	—	—	—	—	—	A	2	C	C
Heuglin's Wheatear	<i>Oenanthe heuglini</i>		—	—	—	6	C	C	C	B	C	C	—	—
Isabelline Wheatear	<i>Oenanthe isabellina</i>		C	C	C	—	—	—	—	—	2	C	D	D
Familiar Chat*	<i>Cercomela familiaris</i>		B	—	—	—	—	—	2	A	B	—	B	A
Brown-tailed Rock Chat*	<i>Cercomela scotocerca</i>	SM	C	C	C	C	C	C	C	C	C	C	D	D
Mocking Cliff Chat*	<i>Thamnolaea cinnamomeiventris</i>		B	B	—	A	A	B	C	A	B	B	C	B
Rufous-tailed Rock Thrush	<i>Monticola saxatilis</i>		A	3	2	—	—	—	—	—	—	—	—	2
African Thrush*	<i>Turdus pelios</i>		B	B	B	>11	C	C	C	B	C	B	A	C

		Biome	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sylviidae														
Eurasian Reed Warbler	<i>Acrocephalus scirpaceus</i>		—	—	—	—	—	—	—	A	—	—	—	—
Eastern Olivaceous Warbler*	<i>Hippolais pallida</i>		C	C	C	D	—	—	—	—	A	—	C	C
Buff-bellied Warbler*	<i>Phylloscopus pulchella</i>		C	B	C	B	C	C	B	C	B	B	B	B
Yellow-bellied Eremomela*	<i>Eremomela icteropygialis</i>		C	C	C	C	B	C	C	B	C	C	C	C
Green-backed Eremomela*	<i>Eremomela canescens</i>	SG	B	—	—	B	B	—	B	B	—	B	B	B
Northern Crombec*	<i>Sylvietta brachyura</i>		B	B	B	7	—	B	B	B	B	B	B	B
Red-faced Crombec*	<i>Sylvietta whytii</i>		C	C	C	C	C	C	C	C	C	C	C	C
Willow Warbler*	<i>Phylloscopus trochilus</i>		A	—	10	24	—	—	—	—	—	2	2	3
Common Chiffchaff	<i>Phylloscopus collybita</i>		—	—	—	—	—	—	—	—	—	—	—	B
Barred Warbler	<i>Sylvia nisoria</i>		—	A	—	—	—	—	—	—	—	—	—	—
Garden Warbler	<i>Sylvia borin</i>		—	—	—	—	—	—	—	—	2	A	2	—
Blackcap	<i>Sylvia atricapilla</i>		—	—	—	—	—	—	—	—	—	—	A	3
Common Whitethroat	<i>Sylvia communis</i>		—	—	—	—	A	—	—	—	—	—	—	—
Cisticolidae														
Rattling Cisticola*	<i>Cisticola chiniana</i>		B	B	C	C	C	C	C	C	C	C	C	C
Boran Cisticola*	<i>Cisticola bodessa</i>	SM	C	B	—	B	B	B	B	B	C	C	C	C
Ashy Cisticola*	<i>Cisticola cinereolus</i>	SM	B	B	B	B	—	—	C	—	B	—	B	B
Tiny Cisticola*	<i>Cisticola nanus</i>	SM	B	B	C	C	C	C	C	B	C	C	C	C
Zitting Cisticola	<i>Cisticola juncidis</i>		—	—	B	B	B	—	—	—	—	B	B	—
Tawny-flanked Prinia*	<i>Prinia subflava</i>		B	B	B	4	B	C	B	C	B	B	B	C
Pale Prinia*	<i>Prinia somalica</i>	SM	C	B	B	B	B	B	C	C	C	C	C	C
Red-fronted Warbler*	<i>Urothippis rufifrons</i>		C	B	C	>25	C	C	C	C	C	C	C	C
Yellow-breasted Apalis*	<i>Apalis flavida</i>		C	—	B	—	—	—	C	C	C	C	B	B
Grey-backed Camaroptera*	<i>Camaroptera brachyura</i>		C	C	C	C	C	C	C	C	C	C	C	C
Grey Wren Warbler*	<i>Calamanastes simplex</i>	SM	C	C	C	>14	C	C	D	C	C	C	C	C
Muscicapidae														
African Grey Flycatcher*	<i>Bradornis microhynchus</i>	SM	D	C	C	D	C	D	D	C	D	C	D	D
Silverbird	<i>Empidonis semipartitus</i>		—	—	—	—	A	—	—	—	—	—	—	—
Spotted Flycatcher*	<i>Muscicapa striata</i>		—	—	A	11	—	—	—	—	—	6	—	—
Gambaga Flycatcher*	<i>Muscicapa gambagae</i>	SG	A	—	—	—	—	—	—	—	A	A	B	2
Monarchidae														
African Paradise Flycatcher*	<i>Terpsiphone viridis</i>		B	C	C	D	B	C	C	C	C	B	C	C
Platysteiridae														
Black-headed Batis*	<i>Batis minor</i>		B	—	—	—	B	B	B	B	B	B	B	B
Pygmy Batis*	<i>Batis perkeo</i>	SM	C	B	B	11	C	7	C	C	B	C	C	C
Timaliidae														
Brown Babbler*	<i>Turdoides plebejus</i>		—	—	—	A	—	—	—	—	—	—	—	—
Rufous Chatterer*	<i>Turdoides rubiginosa</i>	SM	C	C	D	D	D	D	D	D	C	D	D	D
Paridae														
White-winged Black Tit*	<i>Parus leucomelas</i>		B	—	B	—	—	2	2	—	B	2	—	—
Remizidae														
Mouse-coloured Penduline Tit	<i>Anthoscopus musculus</i>	SM	—	—	—	—	—	—	6	—	—	—	—	2
Nectariniidae														
Eastern Violet-backed Sunbird*	<i>Anthreptes orientalis</i>	SM	C	C	C	D	C	D	D	C	C	D	D	C
Hunter's Sunbird	<i>Chalcomitra hunteri</i>	SM	—	B	B	A?	—	—	A	6	—	B	A	B
Pygmy Sunbird	<i>Hedydipna platura</i>		—	B	—	—	—	—	—	—	A?	B	B	—
Beautiful Sunbird*	<i>Cinnyris pulchellus</i>		C	C	C	D	D	D	D	D	D	D	C	C
Shining Sunbird*	<i>Cinnyris habessinicus</i>	SM	C	B	C	C	C	C	C	C	C	C	C	D
Variable Sunbird*	<i>Cinnyris venustus</i>		C	B	—	—	—	2	>17	C	C	C	—	—
Zosteropidae														
African Yellow White-eye*	<i>Zosterops senegalensis</i>		—	B	—	4	5	B	5	B	—	10	B	B
Laniidae														
Taita Fiscal	<i>Lanius dorsalis</i>	SM	B	C	C	24	>20	23	C	C	C	C	C	C
Grey-backed Fiscal	<i>Lanius excubitoroides</i>		—	—	6	10	—	2	4	A	—	—	7	15
Lesser Grey Shrike	<i>Lanius minor</i>		—	—	—	9	—	—	—	—	—	—	—	—
Isabelline Shrike	<i>Lanius isabellinus</i>		—	A?	2	—	—	—	—	—	—	—	A	4
Red-backed Shrike	<i>Lanius collurio</i>		A	—	A	A	—	—	—	—	—	—	—	A
Woodchat Shrike	<i>Lanius senator</i>		A	4	2	7	—	—	—	—	—	—	—	B
Northern White-crowned Shrike*	<i>Eurocephalus rueppelli</i>		D	D	D	D	D	D	D	D	D	D	D	D

		Biome	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Malaconotidae														
Grey-headed Bushshrike*	<i>Malaconotus blanchoti</i>		B	B	C	B	C	B	B	B	B	B	B	C
Sulphur-breasted Bushshrike*	<i>Telophorus sulfureopectus</i>		A	B	C	C	B	B	C	B	B	B	B	C
Rosy-patched Bushshrike*	<i>Rhodophoneus cruentus</i>	SM	B	—	B	>16	B	C	C	C	B	C	C	C
Black-crowned Tchagra*	<i>Tchagra senegalus</i>		B	B	B	2	A	—	>22	B	B	B	C	C
Northern Puffback*	<i>Dryoscopus gambensis</i>		B	B	B	8	2	B	B	B	8	B	C	C
Slate-coloured Bobou*	<i>Lanius funebris</i>		C	C	D	D	D	D	D	C	C	C	D	D
Black-headed Gonolek	<i>Lanius erythrogaster</i>		—	—	—	—	—	—	—	—	—	—	—	A
Brubru*	<i>Nilus afer</i>		C	B	7	9	4	7	6	2	C	B	C	C
Prionopidae														
White Helmetshrike*	<i>Prionops plumatus</i>		C	C	C	C	C	C	C	B	C	C	C	C
Oriolidae														
Eastern Black-headed Oriole*	<i>Oriolus larvatus</i>		C	C	D	D	C	D	D	C	C	C	D	D
African Golden Oriole	<i>Oriolus auratus</i>		2	B	A	—	—	—	—	B	A	—	—	A
Eurasian Golden Oriole	<i>Oriolus oriolus</i>		—	—	—	11	—	—	—	—	6	73	5	A
Dicuridae														
Fork-tailed Drongo*	<i>Dicurus adsimilis</i>		C	D	D	D	D	D	D	D	D	D	D	D
Corvidae														
Cape Crow	<i>Corvus capensis</i>		—	—	—	—	—	10	15	—	—	—	—	—
Pied Crow	<i>Corvus albus</i>		—	—	A	—	—	—	—	—	—	—	2	2
Fan-tailed Raven*	<i>Corvus rhipidurus</i>		B	C	C	>71	>169	C	>35	>32	>65	C	C	C
Sturnidae														
Red-winged Starling*	<i>Onychognathus morio</i>		B	C	C	>20	C	C	>80	C	C	C	D	C
Greater Blue-eared Starling*	<i>Lamprotornis chalybaeus</i>		—	—	—	—	C	>176	>700	D	D	D	C	B
Lesser Blue-eared Starling	<i>Lamprotornis chloropterus</i>		—	—	—	—	>59	C	C	E	D	C	—	—
Rüppell's Glossy Starling*	<i>Lamprotornis purpuroptera</i>		C	D	D	D	D	D	D	D	D	D	D	D
Superb Starling*	<i>Lamprotornis superbus</i>		D	D	D	D	D	D	D	D	D	D	D	D
Shelley's Starling	<i>Lamprotornis shelleyi</i>	SM	C	—	40?	—	2?	>95	>250	>15	C	C	C	C
Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>		—	—	—	6	—	B	>10	C	—	—	—	—
Magpie Starling*	<i>Speculipastor bicolor</i>	SM	C	C	C	C	C	C	C	>15	C	B	C	C
Wattled Starling*	<i>Creatophora cinerea</i>		D	A	C	C	E	D	>700	D	D	C	C	D
Red-billed Oxpecker*	<i>Buphagus erythrorhynchus</i>		C	C	D	>48	C	D	C	C	C	C	C	C
Yellow-billed Oxpecker	<i>Buphagus africanus</i>		—	—	—	—	—	—	—	—	—	A	—	—
Passeridae														
Swainson's Sparrow*	<i>Passer swainsonii</i>	AH	B	C	C	C	D	C	C	D	C	D	C	C
Parrot-billed Sparrow	<i>Passer gongonensis</i>	SM	B?	B	B	—	—	A?	B?	—	B?	—	B	B
Chestnut Sparrow	<i>Passer eminibey</i>		—	—	—	—	—	C	B	—	—	—	—	—
Yellow-spotted Petronia*	<i>Petronia pyrgita</i>		C	C	C	D	D	D	D	C	C	C	D	C
Ploceidae														
White-billed Buffalo Weaver*	<i>Bubalornis albirostris</i>		C	C	C	D	>150	D	D	C	C	C	C	D
Red-billed Buffalo Weaver	<i>Bubalornis niger</i>		—	—	—	—	—	—	—	—	A	—	—	A
White-headed Buffalo Weaver*	<i>Dinemellia dinemelli</i>	SM	C	D	D	D	D	D	D	D	C	D	D	D
White-browed Sparrow Weaver*	<i>Plocepasser mahali</i>		D	D	D	D	D	D	D	D	D	D	D	D
Chestnut-crowned Sparrow Weaver*	<i>Plocepasser superciliosus</i>	SG	C	—	4	B	C	B	C	—	C	C	C	C
Red-headed Weaver	<i>Anaplectes rubriceps</i>		B	C	C	D	C	C	C	C	C	C	C	C
Little Weaver*	<i>Ploceus luteolus</i>		B	B	B	C	B	C	C	C	C	C	B	C
Black-necked Weaver*	<i>Ploceus nigricollis</i>		B	2	B	—	—	C	B	B	B	B	C	C
Northern Masked Weaver*	<i>Ploceus taeniopterus</i>		—	B	B	C	—	B	C	C	—	—	C	C
Lesser Masked Weaver*	<i>Ploceus intermedius</i>		D	D	D	D	C	B	C	D	C	D	D	D
Vitelline Masked Weaver*	<i>Ploceus vitellinus</i>		C	C	D	D	B	—	C	C	B	B	—	C
Village Weaver*	<i>Ploceus cucullatus</i>		—	—	—	—	D	>500	D	D	B	B	D	C
Chestnut Weaver	<i>Ploceus rubiginosus</i>		—	—	—	—	—	—	A	—	—	—	—	—
Red-headed Quelea	<i>Quelea erythropus</i>		—	—	—	A	—	—	A	—	—	—	—	—
Red-billed Quelea	<i>Quelea quelea</i>		C	—	B	D	E	E	>7,300	D	B	C	C	B
Estrildidae														
Crimson-rumped Waxbill*	<i>Estrilda rhodopyga</i>		B	—	C	—	B	B	—	—	—	B	—	20
Black-faced Waxbill	<i>Estrilda erythronotos</i>		—	—	—	—	—	—	—	—	—	—	—	B
Red-cheeked Cordonbleu*	<i>Uraeginthus bengalis</i>		C	C	C	C	C	C	C	C	C	C	C	C
Purple Grenadier*	<i>Uraeginthus ianthinogaster</i>	SM	B	A	B	B	—	B	C	C	B	B	B	C
Green-winged Pytilia*	<i>Pytilia melba</i>		B	C	C	C	C	C	C	C	C	B	C	C
Red-billed Firefinch	<i>Lagonosticta senegala</i>		C	B	C	C	B	C	C	B	C	C	C	C

		Biome	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Black-faced Firefinch	<i>Lagonosticta larvata</i>	SG	—	—	B	—	—	—	—	—	—	—	—	—
Cut-throat Finch	<i>Amadina fasciata</i>		—	—	—	—	—	—	B	—	—	—	—	—
African Silverbill	<i>Lonchura cantans</i>		2	—	—	—	—	—	—	—	—	—	—	—
Viduidae														
Pin-tailed Whydah	<i>Vidua macroura</i>		B	—	4	—	—	A	B	—	—	—	—	—
Eastern Paradise Whydah*	<i>Vidua paradisaea</i>		—	—	C	—	—	15	C	6	2	5	—	9
Steel-blue Whydah	<i>Vidua hypocherina</i>	SM	—	—	—	—	—	—	3	—	—	—	—	—
Village Indigobird*	<i>Vidua chalybeata</i>		—	—	3	—	—	A	—	3	—	A	—	—
Fringillidae														
Reichenow's Seedeater*	<i>Serinus reichenowi</i>		C	B	C	>35	C	C	C	C	C	C	C	C
White-bellied Canary	<i>Serinus dorostriatus</i>	SM	B	B	2	A?	C	C	C	B	B	B	B	C
Emberizidae														
Somali Bunting*	<i>Emberiza poliopleura</i>	SM	C	C	C	C	C	C	C	C	C	C	C	C
Cinnamon-breasted Bunting*	<i>Emberiza tahapisi</i>		B	B	B	4	B	B	B	C	C	C	C	C
Total: 310 species			180	184	209	204	186	189	199	181	209	212	204	222

Appendix 2. Additions to the relevant squares in Nikolaus (1987) / Annexe 2. Compléments aux carrés définis par Nikolaus (1987)

Square numbers = degrees north / east (4/34 = 04°N 34°E). Numéros des carrés = degrés nord / est (4/34 = 04°N 34°E).

		Squares		
		4/34	5/34	5/35
Pink-backed Pelican	<i>Pelecanus rufescens</i>	-	X	-
Great Egret	<i>Egretta alba</i>	-	X	-
Purple Heron	<i>Ardea purpurea</i>	-	X	-
Black Stork	<i>Ciconia nigra</i>	-	X	-
White-faced Whistling Duck	<i>Dendrocygna viduata</i>	-	X	X
European Honey Buzzard	<i>Pernis apivorus</i>	-	X	-
Black Kite	<i>Milvus migrans</i>	-	X	-
Short-toed Snake Eagle	<i>Circaetus gallicus</i>	-	X	-
Brown Snake Eagle	<i>Circaetus cinereus</i>	X	X	-
African Harrier Hawk	<i>Polyboroides typus</i>	-	X	X
Little Sparrowhawk	<i>Accipiter minullus</i>	-	X	-
Long-legged Buzzard	<i>Buteo rufinus</i>	-	X	-
Augur Buzzard	<i>Buteo augur</i>	-	X	-
Lesser Spotted Eagle	<i>Aquila pomarina</i>	-	X	X
Greater Spotted Eagle	<i>Aquila clanga</i>	-	X	-
Verreaux's Eagle	<i>Aquila verreauxii</i>	-	X	-
Lesser Kestrel	<i>Falco naumanni</i>	-	X	-
Wattled Lapwing	<i>Vanellus senegallus</i>	-	X	X
Marsh Sandpiper	<i>Tringa stagnatilis</i>	-	X	-
White-cheeked Turaco	<i>Tauraco leucotis</i>	-	X	X
Common Cuckoo	<i>Cuculus canorus</i>	-	X	-
African Cuckoo	<i>Cuculus gularis</i>	-	X	X
Alpine Swift	<i>Tachymarpis melba</i>	-	X	X
Mottled Swift	<i>Tachymarpis aequatorialis</i>	-	X	-
Red-throated Bee-eater	<i>Merops bulocki</i>	-	X	-
Hoopoe	<i>Upupa epops</i>	-	X	-
Hemprich's Hornbill	<i>Tockus hemprichii</i>	-	X	X
Scaly-throated Honeyguide	<i>Indicator variegatus</i>	-	X	-
Mosque Swallow	<i>Cecropis senegalensis</i>	-	-	X
Rock Martin	<i>Ptyonoprogne fuligula</i>	-	X	-
Common House Martin	<i>Delichon urbicum</i>	-	X	-
White Wagtail	<i>Motacilla alba</i>	-	X	X
Rufous-tailed Rock Thrush	<i>Monticola saxatilis</i>	-	X	-
Buff-bellied Warbler	<i>Phylolais pulchella</i>	-	X	X
Common Chiffchaff	<i>Phylloscopus collybita</i>	-	X	-
Garden Warbler	<i>Sylvia borin</i>	-	X	X
Gambaga Flycatcher	<i>Muscicapa gambagae</i>	-	X	-
Whinchat	<i>Saxicola rubetra</i>	-	X	-

		Squares		
		4/34	5/34	5/35
White-winged Black Tit	<i>Parus leucomelas</i>	-	X	-
Hunter's Sunbird	<i>Chalcomitra hunteri</i>	-	X	X
African Yellow White-eye	<i>Zosterops senegalensis</i>	-	X	X
Isabelline Shrike	<i>Lanius isabellinus</i>	-	X	-
Lesser Grey Shrike	<i>Lanius minor</i>	-	X	-
Woodchat Shrike	<i>Lanius senator</i>	-	X	-
Eurasian Golden Oriole	<i>Oriolus oriolus</i>	-	X	-
Lesser Blue-eared Starling	<i>Lamprolornis chloropterus</i>	-	X	X
Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>	-	X	X
Yellow-billed Oxpecker	<i>Buphagus africanus</i>	-	X	-
White-billed Buffalo Weaver	<i>Bubalornis albirostris</i>	-	X	X
Swainson's Sparrow	<i>Passer swainsonii</i>	-	X	X
Chestnut-crowned Sparrow Weaver	<i>Plocepasser superciliosus</i>	-	X	-
Black-faced Firefinch	<i>Lagonosticta larvata</i>	-	X	-
Steel-blue Whydah	<i>Vidua hypocherina</i>	-	-	X

Appendix 3. Mammal species recorded in the Nanyangacor area, Eastern Equatoria, Sudan, 19 January 2004–5 January 2006 (taxonomy and order as in Kingdon 1997).
Annexe 3. Mammifères observés dans la zone de Nanyangacor, Eastern Equatoria, Soudan, 19 janvier 2004–5 janvier 2006 (taxonomie et ordre des espèces selon Kingdon 1997).

Common name	Scientific name	Date	Location	N
Guereza Colobus	<i>Colobus guereza</i>	various months	Parabuku	>15
Olive Baboon	<i>Papio anubis</i>	various months	Nanyangacor, Parabuku	>25
Patas Monkey	<i>Cercopithecus patas</i>	Oct, Nov, Dec	Nanyangacor	10
Grivet Monkey	<i>Cercopithecus (a.) aethiops</i>	all months	Nanyangacor	C
Yellow-winged Bat	<i>Lavia frons</i>	various months	Lotimor	B
Lesser Elephant Shrew	<i>Elephantulus</i> sp.	various months	Nanyangacor, Lotimor	B
Scrub Hare	<i>Lepus saxatilis</i>	all months	Nanyangacor, Lotimor, Parabuku, all roads	C
Unstriped Ground Squirrel	<i>Xerus rutilus</i>	all months	Nanyangacor, Lotimor, Parabuku, all roads	C
Striped Ground Squirrel	<i>Euxerus erythropus</i>	various months	Nanyangacor, Lotimor, Road 7	B
Rat sp.	<i>Arvicanthis</i> sp.	March	Napwatasigiria	B
Common Jackal	<i>Canis aureus</i>	April	Road 2	B
Side-striped Jackal	<i>Canis adustus</i>	Feb, Apr	Road 2, Road 6	B
Black-backed Jackal	<i>Canis mesomelas</i>	February	Road 6	B
Bat-eared Fox	<i>Otocyon megalotis</i>	various months	Nanyangacor, Road 2	B
Egyptian Mongoose	<i>Herpestes ichneumon</i>	November	Nanyangacor	1
Slender Mongoose	<i>Herpestes sanguinea</i>	various months	Lotimor	B
Dwarf Mongoose	<i>Helogale parvula</i>	various months	Nanyangacor, Road 6	C
White-tailed Mongoose	<i>Ichneumia albicauda</i>	23 June 2004	Nanyangacor	B
Spotted Hyena	<i>Crocuta crocuta</i>	various months	Namorusup, Kauto	B
Common Genet	<i>Genetta genetta</i>	various months	Nanyangacor, Road 2	B
Leopard	<i>Panthera pardus</i>	various months	Nanyangacor	1
Aardvark	<i>Orycteropus afer</i>	various months	Nanyangacor, Road 2	1
Rock Hyrax	<i>Procavia</i> sp.	various months	Nanyangacor, Napwatasigiria	B
African Elephant	<i>Loxodonta africana</i>	various months	Road 6	?
Lesser Kudu	<i>Tragelaphus imberbis</i>	19 December 2005	Road 6	1
Eland	<i>Taurotragus oryx</i>	26 February 2005	Road 6	1
Bush Duiker	<i>Sylvicapra grimmia</i>	19 November 2004	Lotimor	1
Guenther's Dikdik	<i>Madoqua guentheri</i>	26 April 2004	Road 2, Road 6	C